

School Buiding Authority of West Virginia
PROPOSED FUNDING FORMULA CHANGES
November 4, 2019

School Type	Allowance Sept. 2013	Proposed 20% Increase
Elementary Schools	\$ 256	\$ 307
PreK-8 Schools	N/A	\$ 305
Middle Schools	\$ 252	\$ 302
High Schools	\$ 250	\$ 300

Notes: (1) Figures Shown are Dollars per Square Foot

(2) PreK-8 Schools option represents midpoint of Middle & Elementary Schools

SBA FUNDING INCREASES FROM 1990

1990	1997	1999	2000	2007	2009	2010	2011	2013	2014	2015	2016	2017	2018	2019
SBA Increases	14.1%	13.8%	25.6%	66.4%	13.3%	0.4%	3.6%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The average increase of construction cost per year is 3.0%.

Executive Director Roach is recommending a 20% increase.

CONSTRUCTION COST EVALUATION – SBA SCHOOL PROJECTS

Basis of Evaluation

Indices utilized in this evaluation

Engineering News Record (ENR) has been maintaining construction cost indices since 1908. In 1978 ENR began keeping separate indices for twenty major construction markets. Pittsburgh and Cincinnati are the two cities from the ENR data base that are closest to West Virginia. While the Pittsburgh market is the most relevant to the West Virginia market, the Cincinnati market should be monitored as a control to indicate whether trends shown in Pittsburgh are national or local.

Building Cost (BCI) Index History – 1990 - 2019

200 hours of skilled labor at the 20-city average of bricklayers, carpenters and structural ironworkers rates, plus 25 cwt (2,500 lbs) of standard structural steel shapes at the mill price and the fabricated 20-city price, plus 1.128 tons of portland cement at the 20-city price, plus 1,088 board ft of 2 x 4 lumber (*one lineal foot of 2 x 4 = 2/3 board foot*) at the 20-city price. Data shown reflects this index from January 1, 1990 to August 31, 2019.

Construction Cost Index (CCI) History – 1990 - 2019

200 hours of common labor at the 20-city average of common labor rates, plus 25 cwt (2,500 lbs) of standard structural steel shapes at the mill price and the fabricated 20-city price, plus 1.128 tons of portland cement at the 20-city price, plus 1,088 board ft of 2 x 4 lumber (*one lineal foot 2 x 4 = 2/3 board foot*) at the 20-city price. Data shown reflects this index from January 1, 1990 to August 31, 2019.

BCI / CCI Comparisons

Both indices contain the same material component with the BCI being more heavily weighted for the labor component. When graphic representations of both indices are compared, material and labor differences can be recognized.

School Building Authority - SBA Funding Formula (*revised November 2014*)

This document reflects the Authority funding for Elementary Schools, Middle/Junior High Schools and High Schools from 1990 through 2014. Data shown reflects funding updates from January 1, 1990 to September, 2013. A review in September 2014 concluded that no increase was necessary.

Evaluation Results

BCI – CCI Evaluation

Beginning with 1990 as a base zero year, the cumulative annual inflation was calculated for each year. When converted to a graph (*see Fig. 1*), inflation indicates a fairly steady annual increase averaging 3.5% for Cincinnati and 4.4% for Pittsburgh. The Pittsburgh market experienced peaks in 1993, 1996 and 2016. The Pittsburgh CCI increased 14% in 2016 (*see Fig. 2*) indicating a sharp materials increase for the region which has not retreated since (*average 3.6% annually*). Valleys in the Pittsburgh market occurred in 1997 and 2009-2010.

SBA School Funding Formula.

Beginning with 1990 as a base zero year, cumulative inflation was calculated for each funding event. When converted to a graph (*see Fig. 3*), the following results were observed:

1. The 14.1% increase implemented in 1997 failed to track the dominant Pittsburgh index which had gained 27.6% for the same period.
2. The 1999 increase of 13.8% placed the SBA track on the same level as Pittsburgh while indicating a greater increase than either Pittsburgh or Cincinnati (5.7% *average*) over the same two year period. These increases were clearly an adjustment to basic construction market forces.

3. The 2000 increase (25.6%) placed the SBA track significantly higher than either Pittsburgh or Cincinnati (2.8% average) for the one year period.
4. The 2007 increase (66.4%) continued the trend of placing the SBA track even higher above the Pittsburgh or Cincinnati average (21.4%).
5. The 2009 increase (13.3%) again outpaced the Pittsburgh and Cincinnati indices (2.5% average) increasing the gap between labor and material escalation and the mounting cost of West Virginia school construction.
6. The 2010, 2011 and 2013 increase of 7.0% lags the Pittsburgh and Cincinnati indices (11.1%) but seems to indicate a return to material and labor adjustments and that the conditions that warranted the pressures from 1999 to 2009 had eased.

Conclusions

While inflationary pressures have remained fairly constant for the past thirty years, SBA school construction costs have significantly exceeded labor and material escalation. Labor and material costs in the Pittsburgh market for the period 1990 – 2013 increased an average of 129.6% while SBA school construction costs increased by an average of 234%. This disparity of 104.4% represents an increase of 80.6% over labor and material market conditions.

Beginning in the late 90's, the SBA Established Quality and Performance Standards for construction that have been refined up to 2013. These standards represented significant upgrades in many building systems. Since the year 2000 various Federal, State and local codes and regulations have dictated changes and upgrades to materials, methods and systems utilized for much of the first decade of SBA projects. These changes involved roofing, insulation (*thermal and sound absorbing*), structural, plumbing, HVAC and electrical systems. Site issues including stormwater management, extended paving and increased sidewalk areas have also contributed to the increased costs.

Changes in programs for elementary and PK-8 schools have created more private spaces and more separation of student populations. Safe student demands have increased physical security as well as electronic security.

It is not possible to enumerate in this document all the changes that have created the disparity between annual labor and material escalation and SBA school construction costs. The changes that have been incorporated since the late 90's have significantly improved the quality and performance of today's West Virginia schools.

Attached is a partial list of issues (*Attachment A*) that have significantly impacted school construction costs.

It is also obvious that region and geography significantly affect the cost of school projects. The region of the state dictates the marketplace for the project and the geographical location dictates the site development costs. It is impossible for a single pricing formula to cover all possible contingencies in a state as diverse as West Virginia. SBA board and staff need flexibility to address individual disparities as the need arises.

Recommendations

Funding has not been addressed since November 2014. Since that time the Pittsburgh labor and material market has risen an average of 24.1%. An immediate increase of at least 20% should be considered. In addition, SBA staff should be authorized to review and recommend to the Authority relief in instances where region, geography or program create a financial burden deserving of relief. An annual funding review should be added to the SBA calendar with stakeholders from the education, design and construction fields providing information regarding program, code issues and market conditions which could impact school construction costs.

BCI and CCI AVERAGE ESCALATION: 1990 - 2019

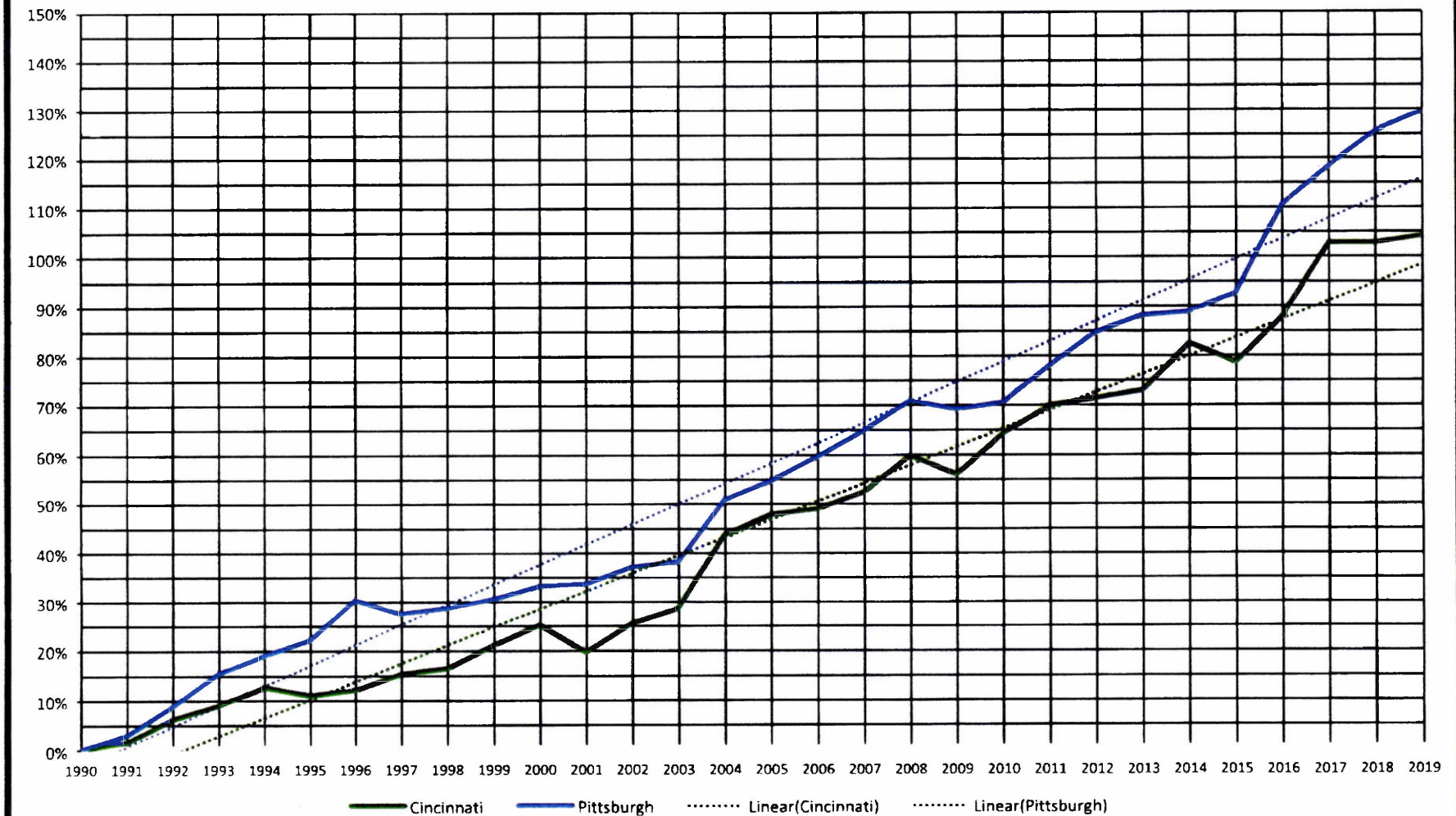
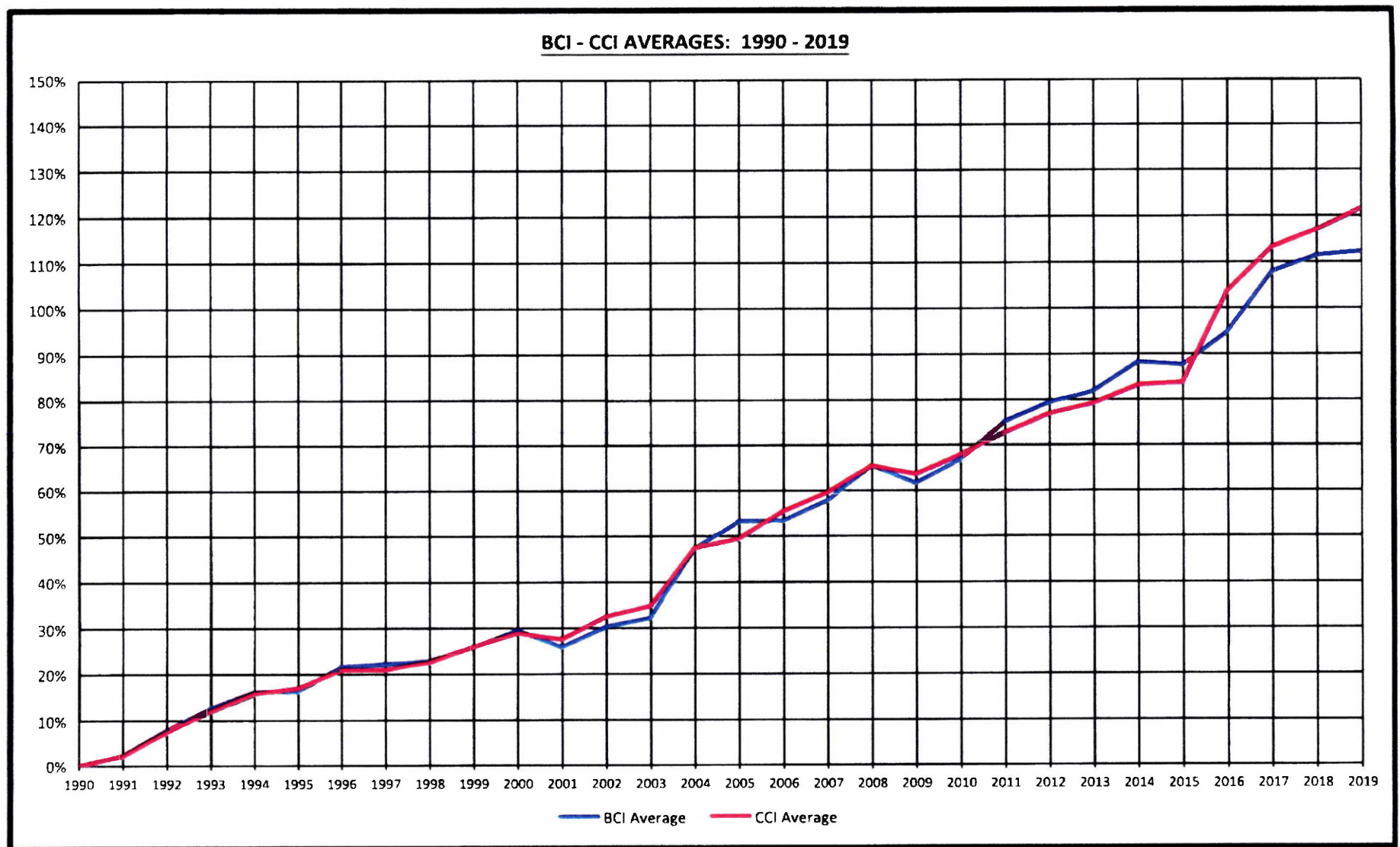


Figure 1



BCI = Labor Market Indicator

CCI = Material Market Indicator

Figure 2

SBA Funding Formula

**SBA Maximum Gross Building
Square Footage Allowance**
Revised November 2014

No. of Students	Square Feet Per Student		
Elementary	Apr-09	Jun-08	Old
up to 240	168	148	139
241-265	158	142	133
266-290	150	135	127
291-315	141	127	120
316-340	135	122	115
341-399	128	116	110
400-440	118	111	105
441-490	112	105	100
491-540	106	100	95
541-590	100	94	90
591-640	100	94	90
over 641 students	99	94	90
Middle/Junior High	Current	Old	
up to 500 students	154	150	
501-550	149	145	
551-600	144	140	
601-650	138	135	
651-700	133	130	
701-750	128	125	
751-800	123	120	
801-850	118	115	
851-925	113	110	
926-1000	107	105	
over 1000 students	102	100	
High Schools	Current	Old	
up to 500 students	234	230	
501-550	224	220	
551-600	219	215	
601-650	213	210	
651-700	198	195	
701-750	188	185	
751-799	181	178	
800-900	175	172	
901-1000	168	166	
1001-1150	163	161	
1151-1300	157	155	
1301-1500	152	150	
over 1500 students	146	145	

SBA Funding Levels Since Inception (\$ per Square Foot)

Elementary Funding	
1990	\$72.00
Jun-97	\$82.00
Jun-99	\$94.00
Sep-00	\$114.00
Jun-07	\$194.00
Jun-09	\$217.00
Sep-09	\$228.00
Sep-10	\$230.00
Dec-11	\$240.00
Mar-13	\$253.00
Sep-13	\$256.00

+ 256%

Middle/Junior High Funding	
1990	\$76.00
Jun-97	\$88.00
Jun-99	\$102.00
Sep-00	\$130.00
Jun-07	\$211.00
Jun-09	\$228.00
Sep-09	\$235.00
Sep-10	\$237.00
Dec-11	\$249.00
Sep-13	\$252.00

+ 232%

High School Funding	
1990	\$80.00
Jun-97	\$90.00
Jun-99	\$100.00
Sep-00	\$128.00
Jun-07	\$214.00
Jun-09	\$233.00
Sep-09	\$238.00
Sep-10	\$243.00
Dec-11	\$247.00
Sep-13	\$250.00

+ 213%

Average + 234%
"GREEN" Projects + \$5/sf

Maximum allowable square footages are used to provide equity for funding of schools with various design enrollments.
Actual building design square footage will be dictated by the number of square feet allowed per student and the building program utilization calculation prepared for each project. If a full or partial inclusion (model1) for special education is used, the maximum square footage may be reduced.

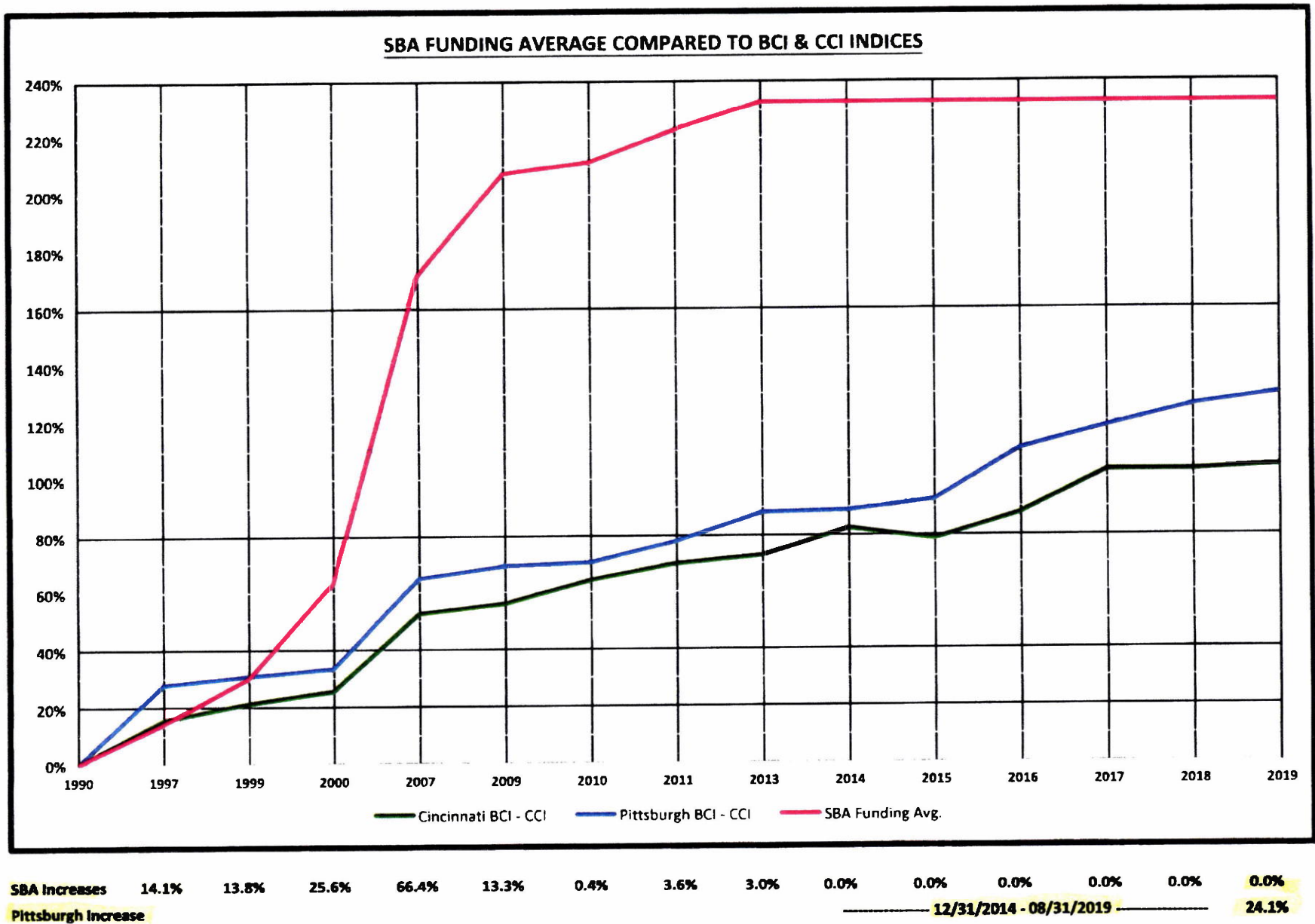


Figure 3

Attachment A
School Building Cost Issues: 2000 - 2019

Architectural

Roof Systems – increased insulation – fully adhered – added drains
Exterior membrane barrier
Acoustical ceilings have a higher STC and NRC values
Interior partitions have a higher STC and NRC values
Safe School entries and “man traps”
Additional partitions, doors and entries required by toilet configurations and class separations in elementary and PK-8 schools
Casework associated with technology
Efforts to provide flooring with longer useful life

Structural

Changes in seismic designations resulted in:
 Increase in bearing wall reinforcement
 Increase in structural steel connection costs
 Increase in cost of fire suppression supports
 Addition of “tie beams” to certain foundations
 Requirement to brace most interior partitions to the structure

Plumbing

Increased numbers of individual toilets in elementary and PK-8 schools
Transgender toilet room issues
Energy codes for domestic hot water

HVAC

Return air ductwork required
Energy codes dictate fresh air requirements
Energy codes require more sophisticated equipment (*i.e. heat recapture, etc.*)
Advanced HVAC control systems to maximize energy efficiency and systems monitoring
Requirements for operator training
Extended warranties

Electrical

Advanced technology lighting and recently LED
Advanced intercom systems
Communication and IT technology increase
Life safety and surveillance technology increase
Emergency generators and/or UPS systems where necessary

Commissioning

Commissioning costs range from \$0.750/sf - \$1.50/sf

Attachment A
School Building Cost Issues: 2000 - 2019

Site Issues

Increased parking areas
Added separate bus and auto pickup loops
Stormwater management and retention
Smooth walking surface from all exits required
Fencing of exterior occupied spaces
Booster pumps for fire and/or domestic water
Package wastewater treatment plants
DOH standards applied to all site improvements

Intangible Issues

"Hybrid" usage (*i.e. PK-8*)
Overall school size reduction
Region of state cost issues (*i.e. construction market, site availability, etc.*)